R E P O R T R E S U M E S

ED 019 467 VT 003 580

FACTORS RELATED TO THE OCCUPATIONS OF IOWA FARM MALE HIGH SCHOOL GRADUATES.

BY- ROBINSON, TED RICHARD
IOWA STATE UNIV. OF SCIENCE AND TECH., AMES
IOWA AGRICULTURE AND HOME ECON. EXPERIMENT STATION
IOWA STATE DEPT. OF PUBLIC INSTR., DES MOINES

PUB DATE AUG 64

EDRS PRICE MF-$0.25 HC-$1.04 24P.

DESCRIPTORS- *VOCATIONAL AGRICULTURE, *GRADUATE SURVEYS, *HIGH SCHOOL GRADUATES, OFF FARM AGRICULTURAL OCCUPATIONS, *FARM OCCUPATIONS, MALES, VOCATIONAL FOLLOWUP, FAMILY BACKGROUND, MIGRATION, INCOME, IOWA,

QUESTIONNAIRES SENT TO 8,281 MALE GRADUATES OF 189 IOWA HIGH SCHOOLS FROM 1950 TO 1954 INVESTIGATED THE RELATIONSHIP OF SELECTED GEOGRAPHICAL, ENVIRONMENTAL, EDUCATIONAL, AND SOCIOECONOMIC FACTORS TO THE OCCUPATIONS OF THE GRADUATES. THE FINAL POPULATION OF THE STUDY WAS 6,107 GRADUATES COMPOSED OF THOSE WHO HAD ENROLLED IN SIX OR MORE SEMESTERS OF VOCATIONAL AGRICULTURE AND THOSE WHOSE FATHERS WERE FARMING ON THE DAY THEIR SONS GRADUATED OR WERE FARMING DURING MOST OF THE TIME THEIR SONS WERE IN HIGH SCHOOL. SOME FINDINGS WERE--(1) 29.63 PERCENT OF THE GRADUATES WERE ENGAGED IN FARMING OR WERE EMPLOYED AS FARM MANAGERS, (2) GRADUATES ENGAGED IN FARMING OR OFF-FARM AGRICULTURAL OCCUPATIONS TENDED TO REMAIN IN THEIR HOME COMMUNITIES MORE THAN THE NONAGRICULTURALLY EMPLOYED GRADUATES, (3) GRADUATES CLASSED AS PROFESSIONAL AND TECHNICAL, MANAGERS AND PROPRIETORS, CLERICAL, SALES, AND CRAFTSMEN MIGRATED MORE EXTENSIVELY THAN WAS EXPECTED, AND (4) A HIGHER PERCENTAGE OF THOSE FROM A HIGHER LEVEL OF LIVING INDEX AND FROM LARGER HOME FARMS WAS CLASSIFIED AS FARMERS AND FARM MANAGERS. PILOT PROGRAMS ARE NEEDED TO DEVELOP AN EDUCATIONAL CURRICULUM WHICH WILL BE MORE BENEFICIAL TO GRADUATES ENGAGED IN OFF-FARM AGRICULTURAL OCCUPATIONS. THIS IS AN ABSTRACT OF A PH.D. DISSERTATION SUBMITTED TO IOWA STATE UNIVERSITY OF SCIENCE AND TECHNOLOGY. THE COMPLETE DOCUMENT IS AVAILABLE AS 65-4633 FOR $3.60 ON MICROFILM AND FOR $12.60 AS XEROXED COPY FROM UNIVERSITY MICROFILMS, INC., 300 NORTH ZEEB ROAD, ANN ARBOR, MICHIGAN 48106. (WB)

ED019467

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

FACTORS RELATED TO THE OCCUPATIONS OF IOWA FARM MALE HIGH SCHOOL GRADUATES

Ted Richard Robinson

Department of Education

and

Iowa Agriculture and Home Economics Experiment Station
Iowa State University of Science and Technology
Ames, Iowa

in cooperation with

Vocational Agriculture Section
Division of Vocational Education
State Department of Public Instruction
Des Moines, Iowa

VT003580

This is an abstract of a dissertation submitted to the Iowa State University of Science and Technology by Ted Richard Robinson in partial fulfillment of the requirements for the degree of Doctor of Philosophy in August of 1964.

The study is one of a series conducted by the Department of Education of Iowa State University of Science and Technology with the assistance of graduate students in agricultural education in cooperation with the Iowa Agriculture and Home Economics Experiment Station and the Vocational Agriculture Section, Division of Vocational Education, State Department of Public Instruction.

This abstract was prepared by Ted R. Robinson with the assistance of Alan A. Kahler and Roy D. Hickman, research assistants for the Iowa Agriculture and Home Economics Experiment Station Project 1253, under the direction of Professor C. E. Bundy.

FACTORS RELATED TO THE OCCUPATIONS OF IOWA FARM MALE HIGH SCHOOL GRADUATES

by

Ted Richard Robinson

Purpose of the Study

The primary objective of this study was to investigate the relationship of selected geographical, environmental, educational and socio-economic factors to the occupations of 1950-1954 Iowa male high school graduates. The occupational status and intercorrelations of these variables also were measured and evaluated.

Method of Procedure

For the initial collection of educational and biographical data, information was requested from 189 Iowa high schools that had offered an approved program of vocational agriculture during at least one school year from 1949-1950 through 1953-1954. As an additional criterion for selection, the members of at least one of the graduating classes must have had an opportunity to enroll in a three- or four-year vocational agriculture program.

Graduates included in the study were those whose fathers were farming on the day their sons were graduated from high school or who had farmed during most of the time that their sons were in high school. Graduates who had enrolled in six or more semesters of vocational agriculture also were included in the study.

Data were obtained from 165 or 87.3 percent of the 189 selected Iowa high schools. The names of 8829 graduates were reported by the participating high schools. Of this total, 548 were deleted from the population due to total incapacitation, unavailable addresses, and failure to meet the specified criteria.

A questionnaire was sent to each graduate requesting information about his home background, education, and occupational status. Of the 8281 graduates from whom responses were expected, 6013 or 72.61 percent returned the questionnaire. An examination of the questionnaires revealed that an additional 291 of the graduates failed to meet the basic criteria for inclusion in the population. The final population of respondents numbered 5722, and the final response rate was 71.61 percent.

Findings

An examination of the initial tabulations of the data revealed biased response rates resulting, in part at least, from differences in the sizes of the high school graduating classes and the graduates' quartile ranks. These biases were reduced by post-stratification of the population, wherein data

from the low-responding strata were duplicated randomly and data from the high-responding strata were removed randomly from the population. The final reapportioned population was composed of 6107 graduates.

A frequency distribution of the graduates revealed that 29.63 percent were engaged in farming or were employed as farm managers. Of the remaining graduates, 13.31 were classified as being in off-farm agricultural occupations, 1.93 percent were farm laborers, and 55.13 percent were employed in non-agricultural occupations. Using the U. S. Bureau of Census occupational classifications, 18.32 percent of the graduates were classified as professional and technical; 29.63 percent were farmers and farm managers; 8.66 percent were managers and proprietors; 6.17 percent were clerical; 5.60 percent were sales; 14.70 percent were craftsmen; 9.84 percent were operatives; 1.61 percent were in service occupations (except private household); 1.93 percent were farm laborers; and 3.54 percent were laborers (except farm and mine).

A chi-square analysis, shown in Table 1, of the distribution of the graduates classified according to the agricultural classification of their occupations and migration from their home communities indicated that highly significant differences existed among the graduates. A higher proportion of the graduates engaged in farming (93.84 percent) remained in their home communities as compared to those engaged in nonagricultural occupations (36.06 percent). The graduates employed in off-farm agricultural occupations also tended to remain in their home communities more frequently than the nonagriculturally employed graduates.

The investigation produced evidence to indicate that the graduates in off-farm agricultural and nonagricultural occupations were receiving higher incomes as compared to the graduates in farming as shown in Table 2. The data also revealed that a wider dispersion of incomes existed among the farmers and farm managers as compared to the other classifications of occupations.

The graduates classed as farmers and farm managers expressed "very much" need for a knowledge of agriculture in their occupations. In contrast, the nonagricultural employed graduates indicated "little" need for a knowledge of agriculture, whereas the graduates in off-farm agriculture occupations responded that a knowledge of agriculture was "much" needed in their occupations as shown in Table 3.

Except for the graduates classified as farmers, farm managers, and farm laborers, the highest mean need for a knowledge of agriculture was expressed by the graduates classed as sales and as managers and proprietors. Each of these latter classifications as a group indicated "some" need for a knowledge of agriculture in their occupations. The remaining six classifications of graduates indicated "little" or "no" need for a knowledge of agriculture.

A highly significant chi-square value of 2150.097 was derived from the analysis of the distribution of the graduates classified according to the census classification of their occupations and the extent of their migration from their home communities. In addition to the farmers and farm managers, the graduates classified as operatives, farm laborers and laborers (except farm and mine) tended to remain in their home communities more frequently than was expected. Graduates classed as professional and technical, managers and proprietors, clerical, sales and craftsmen migrated more extensively than was expected.

Table 1. Agricultural classification of occupations by migration of graduates[a]

Migration	Agricultural classification							
	Farmers, farm managers and farm laborers		Off-farm agricultural		Nonagricultural		Total	
	N	%	N	%	N	%	N	%
Same or contiguous county	1767	93.84	461	58.06	1233	36.06	3461	56.78
Same economic area	17	0.90	54	6.80	203	5.94	274	4.49
Within Iowa	27	1.43	138	17.38	571	16.70	736	12.07
Contiguous state	58	3.08	77	9.70	511	14.95	646	10.60
Outside contiguous state	14	0.75	64	8.06	901	26.35	979	16.06
Total	1883	100.00	794	100.00	3419	100.00	6096[b]	100.00

[a]Chi-square value = 1742.571. Table value at one percent level with eight degrees of freedom is 20.090. Significant at one percent level.

[b]Information not available on 11 graduates.

Table 2. Agricultural classification of occupations by primary occupational income

Income	Agricultural classification									
	Farmers and farm managers		Farm laborers		Off-farm agricultural		Nonagricultural		Total	
	N	%	N	%	N	%	N	%	N	%
$3000 or less	365	22.70	82	73.22	40	5.17	209	6.34	696	12.01
$3001 to $6000	730	45.40	28	25.00	423	54.65	1692	51.27	2873	49.59
$6001 to $9000	232	14.43	1	0.89	235	30.36	1127	34.15	1595	27.53
$9001 and over	281	17.47	1	0.89	76	9.82	272	8.24	630	10.87
Total	1608	100.00	112	100.00	774	100.00	3300	100.00	5794[a]	100.00

[a]Information not available or inappropriate on 313 graduates.

Table 3. Agricultural classification of occupations by expressed need for knowledge of agriculture in occupations

Need	Agricultural classification									
	Farmers and farm managers		Farm laborers		Off-farm agricultural		Nonagricultural		Total	
	N	%	N	%	N	%	N	%	N	%
None (1)	7	0.40	6	5.22	53	6.70	1840	56.48	1906	32.20
Little (2)	9	0.51	0	0.00	41	5.19	626	19.21	676	11.42
Some (3)	78	4.44	10	8.70	164	20.73	581	17.83	833	14.08
Much (4)	177	10.09	19	16.52	176	22.25	133	4.08	505	8.53
Very much (5)	1484	84.56	80	69.56	357	45.13	78	2.40	1999	33.77
Total	1755	100.00	115	100.00	791	100.00	3258	100.00	5919[a]	100.00

[a]Information not available or inappropriate on 188 graduates.

From the data provided by 5,713 graduates, 49.89 percent were earning annual incomes of between $3001 and $6000. Eleven and eighteen hundredths percent were earning $3000 or less and 11.03 percent were earning $9001 and over in annual incomes. As contrasted with graduates in other census classifications, the graduates classed as professional and technical, managers and proprietors, and as sales workers were earning higher incomes.

The highest mean need for a knowledge of agriculture was expressed by the graduates who were receiving annual incomes of $3000 or less. Graduates who were receiving incomes of between $6001 and $9000 expressed the lowest mean need scale value, whereas an intermediate need value was expressed by the graduates who were receiving incomes of $9001 and over. Among the graduates employed in off-farm agricultural occupations, those classified as being employed in agricultural education services tended to receive the highest incomes as shown in Table 4. These latter graduates also expressed the greatest need for a knowledge of agriculture in their occupations.

Graduates who remained in their home communities reported lower incomes in comparison to those who migrated. Of the graduates who remained in their home communities, 71.93 percent received incomes of $6000 or less, and the remainder received incomes of $6001 and over. In contrast, 41.93 percent of the graduates who migrated beyond a state continguous to Iowa received incomes of $6000 and less and the remaining 58.07 percent received incomes of $6001 and over.

In analyzing the geographical factors related to the occupations of the graduates, a chi-square analysis revealed that significant differences existed among the actual and expected frequencies of the graduates classified according to the agricultural classification of their occupations and the Iowa economic area in which their high schools were located. The occupations of the graduates from the Southern Pasture area were classed as nonagricultural more frequently than was expected. Fewer of the graduates from this area were classed as farmers, farm managers, farm laborers and off-farm agricultural employees than was expected. More of the graduates from the Western Livestock and Northeast Dairy areas were classed as off-farm agricultural and more of the graduates from the North Central Grain area were classed as farm laborers than was expected. This data is presented in Table 5.

As contrasted with the percentages of all the graduates in each of the census classifications, a higher percentage of the graduates from the Western Livestock and North Central Grain areas were classified as professional and technical; a higher percentage of the graduates from the Eastern Livestock area were classified as farmers and farm managers and as craftsmen; more from the Southern Pasture area were classed as managers and proprietors, craftsmen, operatives and laborers (except farm and mine); and a higher percentage of the North Central Grain area graduates were classed as farmers and farm managers.

Graduates from the Northeast Dairy and Eastern Livestock areas tended to migrate less extensively, whereas those from the Western Livestock and Southern Pasture areas migrated more extensively than was expected according to the significant chi-square which was derived. Proximity of the graduates' homes to a city with a population of 10,000 or more persons on the day of their graduation from high school apparently had little influence on the agricultural classification of their occupations at the time of the study. Likewise, only minor differences existed in the annual incomes of the graduates classified by Iowa economic area.

Table 4. Off-farm agricultural occupations by primary occupational incomes

Income		Off-farm agricultural occupations[a] 1	2	3	4	5	6	7	8	9	N	%
$3000 or less	(N)	5	9	4	4	5	9	2	1	85	124	13.69
	(%)	8.06	4.62	9.76	2.74	19.23	5.15	3.28	2.00	56.67		
$3001 to $6000	(N)	31	126	24	110	20	66	28	10	47	462	50.99
	(%)	50.00	64.62	58.54	75.34	76.92	37.71	45.90	20.00	31.33		
$6001 to $9000	(N)	20	44	10	24	1	66	29	36	13	243	26.82
	(%)	32.26	22.56	24.39	16.44	3.85	37.71	47.54	72.00	8.67		
$9001 and over	(N)	6	16	3	8	0	34	2	3	5	77	8.50
	(%)	9.68	8.20	7.31	5.48	0.00	19.43	3.28	6.00	3.33		
Total	(N)	62	195	41	146	26	175	61	50	150	906[b]	100.00
	(%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00		

[a]Off-farm agricultural occupations are numbered as follows: 1 = Dairy; 2 = Feed and/or seed; 3 = Soil and/or fertilizer; 4 = Farm machinery; 5 = Poultry; 6 = Livestock; 7 = Farm Management (including farm managers); 8 = Agricultural educational services; 9 = Other (including farm laborers).

[b]Information not available or inappropriate on 34 graduates.

Table 5. Agricultural classification of occupations by Iowa economic area of high schools[a]

Economic area		Agricultural classification: Farmers and farm managers	Farm laborers	Off-farm agricultural	Non-agricultural	Total N	Total %
Northeast dairy	(N)	384	27	183	697	1291	21.18
	(%)	21.72	23.48	23.05	20.39		
Eastern livestock	(N)	277	14	91	474	856	14.04
	(%)	15.67	12.17	11.46	13.86		
Southern pasture	(N)	262	16	132	744	1154	18.93
	(%)	14.82	13.91	16.62	21.76		
Western livestock	(N)	444	28	223	789	1484	24.34
	(%)	25.11	24.35	28.09	23.08		
North central grain	(N)	401	30	165	715	1311	21.51
	(%)	22.68	26.09	20.78	20.91		
Total	(N)	1768	115	794	3419	6096[b]	100.00
	(%)	100.00	100.00	100.00	100.00		

[a]Chi-square value = 55.140. Table value at one percent level with 12 degrees of freedom is 26.217. Significant at one percent level.

[b]Information not available on 11 graduates.

An examination of the level of living indices of the graduates' homes indicated that a higher percentage of those from higher level of living index areas were classified as farmers and farm managers, whereas more graduates from relatively low level of living index areas tended to be classified as nonagriculturally employed. A higher proportion (62.16 percent) of the graduates from the high index townships remained in their home communities, whereas graduates from low index areas tended to migrate, especially to new locations within Iowa.

A chi-square value of 68.064 revealed that significant differences existed among the farm-reared graduates classified according to the agricultural classification of their occupations and the size of their home farms as shown in Table 6. More of the graduates from the larger home farms (321 acres and over) tended to be classed as farmers and farm managers, whereas more of the graduates from the farms of 160 acres and less tended to be nonagriculturally employed. Nonsignificant differences were found, however, in the chi-square analysis of the actual and expected frequencies of the graduates classified according to the size of their home farms and the extent of their migration. This data is presented in Table 4.

More of the graduates whose fathers were owner-renters or owners became farmers than did those whose fathers were employed farm operators or renters only. A higher percentage of the sons of employed operators and renters were classified as off-farm agricultural and nonagricultural employees according to the significant chi-square findings. The farming status of the graduates' fathers apparently had only a minor influence on the migration of the graduates. A chi-square value of 18.033, which was significant at the five percent level, revealed a tendency for the sons of employed operators or renters to migrate more extensively than the sons of the owners or owner-renters.

The formal education completed by the fathers of the graduates tended to be related to the census classification of the occupations of the graduates. A chi-square analysis of the distribution of the census classifications revealed a steady increase in the percentage of the graduates classed as professional and technical was accompanied by an increase in the education completed by the graduate's father. Conversely, the percentage of graduates classified as farmers and farm managers, operatives, farm laborers, and laborers (except farm and mine) tended to increase with decreases in the educational levels attained by the graduates' fathers. The data also revealed a distinct tendency for the income of the graduates to increase in direct relation to the education attained by the fathers.

The chi-square analysis of the distribution of the graduates classified according to the education completed by their mothers also produced a significant value. A higher proportion (26.48 percent) of the graduates whose mothers attended one or more years of college was engaged in professional and technical occupations than was expected. Likewise, fewer of the sons of mothers who had attended college were farmers and farm managers, craftsmen, and operatives. The annual incomes of the graduates tended to increase with increases in the education attained by their mothers.

A higher percentage of the farmers and farm managers had three or less siblings, whereas a higher percentage of the graduates engaged in off-farm agricultural and nonagricultural occupations had four or more siblings. Thirty and thirty-nine hundredths percent of the farmers and farm managers had four or more siblings, whereas 36.03 percent of the nonagriculturally employed and 39.09 percent of the off-farm agriculturally employed graduates had four or more siblings.

Table 6. Size of home farm of graduates by agricultural classification of occupations[a]

Agricultural classification		Size of home farms in acres			Total	
		1-160	161-320	321 and over	N	%
Farmers and farm managers	(N)	493	850	335	1678	30.97
	(%)	24.73	33.60	37.43		
Farm laborers	(N)	38	46	23	107	1.98
	(%)	1.91	1.82	2.57		
Off-farm agricultural	(N)	269	319	117	705	13.01
	(%)	13.50	12.61	13.07		
Nonagricultural	(N)	1193	1315	420	2928	54.04
	(%)	59.86	51.97	46.93		
Total	(N)	1993	2530	895	5418[b]	100.00
	(%)	100.00	100.00	100.00		

[a]Chi-square value = 68.064. Table value at one percent level with six degrees of freedom is 16.812. Significant at one percent level.
[b]Information not available or inappropriate of 689 graduates.

Table 7. Classification of father's farming status by agricultural classification of graduate's occupation[a]

Agricultural Classification		Father's farming status			Total	
		Employed farm operator or renter	Owner-renter	Owner	N	%
Farmers and farm managers	(N)	323	449	914	1686	31.00
	(%)	20.69	34.97	35.24		
Farm laborers	(N)	34	28	44	106	1.95
	(%)	2.18	2.18	1.70		
Off-farm agricultural	(N)	255	184	275	714	13.13
	(%)	16.34	14.33	10.60		
Non-agricultural	(N)	949	623	1361	2633	53.92
	(%)	60.79	48.52	52.46		
Total	(N)	1561	1284	2594	5439[b]	100.00
	(%)	100.00	100.00	100.00		

[a]Chi-square value = 124.749. Table value at one percent level with six degrees of freedom is 16.812. Significant at one percent level.
[b]Information not available or inappropriate in 668 graduates.

The number of siblings who had received a college degree apparently was not related to the agricultural classification of the graduates' occupations. Significant differences were noted, however, in the migration of the graduates classified by the number of siblings with a college degree. The graduates tended to migrate more extensively as the number of siblings with a college degree increased.

Graduates in farming and farm management tended to enroll in fewer semesters of mathematics and science as did those classified as operatives. The farmers and farm managers, however, had enrolled more frequently in a significantly higher number of semesters of vocational agriculture.

Data presented in Table 8 reveal that the proportion of graduates classified as professional and technical decreased as the number of semesters of vocational agriculture increased. Of the total population, 49.39 percent had enrolled in seven or more semesters of vocational agriculture. Of the graduates who had enrolled in seven or more semesters of vocational agriculture, 13.80 percent were engaged in professional and technical occupations, 35.51 percent were farmers and farm managers, 14.24 percent were craftsmen, and the balance were distributed throughout the other census classifications. Within the agricultural classification, as shown in Table 9, 13.86 percent of the graduates with seven or more semesters of vocational agriculture were classified as off-farm agricultural, 48.96 percent were nonagricultural, and 2.31 percent were farm laborers. Of the graduates who were classified as off-farm agriculturally employed, 73.80 percent had enrolled in five or more semesters of vocational agriculture whereas 76.42 percent of the farmers and farm managers had enrolled in five or more semesters.

The farmers, farm managers, and farm laborers were the only census classification groups of graduates that indicated vocational agriculture had been of "much" value to them in their occupations as shown in Table 10. Those engaged in the off-farm agricultural occupations indicated that vocational agriculture had been of "some" value (3.42) as had their 4-H Club activities (3.06). The graduates employed in nonagricultural occupations revealed that both vocational agriculture (1.91) and 4-H Club activities (1.92) had been of "little" value to them.

An analysis of the migration of the graduates classified according to the number of semesters of vocational agriculture, presented in Table 11, revealed that the extent of migration was indirectly related to semesters of vocational agriculture. The need for a knowledge of agriculture, however, was directly related to semesters of vocational agriculture. Forty-six and sixty-four hundredths percent of those with no vocational agriculture expressed at least "some" need for a knowledge of agriculture in their occupations, whereas 37.21 percent of those with seven or more semesters indicated "little" or "no" need for a knowledge of agriculture in their occupations.

The graduates classified as professional and technical and as sales workers reported the highest mean extracurricular activity participation scores, and the lowest mean scores were reported by the farm laborers, laborers (except farm and mine), and operatives. Low activity participation scores were associated with less extensive migration by the graduates.

A lower percentage of the graduates in the top one-fourth of their graduating classes were in farming and farm management as compared to off-farm agricultural and nonagricultural groups, as shown in Table 12. Conversely, a relatively higher proportion of the graduates in the bottom one-fourth of their classes were farmers

Table 8. Census classification of occupation by semesters of vocational agriculture[a]

Census classification		Semesters of vocational agriculture					
		None[b]	One to four	Five or six	Seven or more	Total N	Total %
Professional and technical	(N)	212	266	207	408	1093	18.32
	(%)	27.32	24.40	18.12	13.80		
Farmers and farm managers	(N)	160	257	301	1050	1768	29.63
	(%)	20.62	23.58	26.33	35.51		
Managers and proprietors	(N)	81	85	111	240	517	8.67
	(%)	10.44	7.80	9.71	8.12		
Clerical	(N)	58	76	68	166	368	6.17
	(%)	7.48	6.97	5.95	5.61		
Sales	(N)	51	74	72	137	334	5.60
	(%)	6.57	6.79	6.30	4.63		
Craftsmen	(N)	104	159	193	421	877	14.70
	(%)	13.40	14.59	16.88	14.24		
Operatives	(N)	80	101	113	293	587	9.84
	(%)	10.31	9.26	9.89	9.91		
Service	(N)	6	23	16	51	96	1.61
	(%)	0.77	2.11	1.40	1.72		
Farm laborers	(N)	7	15	18	75	115	1.93
	(%)	0.90	1.38	1.57	2.54		
Laborers (except farm and mine)	(N)	17	34	44	116	211	3.53
	(%)	2.19	3.12	3.85	3.92		
Total	(N)	776	1090	1143	2957	5966[c]	100.00
	(%)	100.00	100.00	100.00	100.00		

[a]Chi-square value = 213.738. Table value at one percent level with 27 degrees of freedom is 46.963. Significant at one percent level.

[b]Includes graduates for whom data regarding high school course work were not available.

[c]Information not available on 141 graduates.

Table 9. Agricultural classification of occupations by semesters of vocational agriculture[a]

Semesters of vocational agriculture		Agricultural classification: Farmers and farm managers	Farm laborers	Off-farm agricultural	Non-agricultural	Total N	Total %
None[b]	(N)	160	7	98	538	803	13.17
	(%)	9.05	6.09	12.34	15.74		
One or two	(N)	110	6	45	346	507	8.32
	(%)	6.22	5.22	5.67	10.12		
Three or four	(N)	147	9	65	385	606	9.94
	(%)	8.31	7.82	8.19	11.26		
Five or six	(N)	301	18	174	676	1169	19.18
	(%)	17.03	15.65	21.91	19.77		
Seven or more	(N)	1050	75	412	1474	3011	49.39
	(%)	59.39	65.22	51.89	43.11		
Total	(N)	1768	115	794	3419	6096[c]	100.00
	(%)	100.00	100.00	100.00	100.00		

[a]Chi-square value = 168.262. Table value at one percent level with 12 degrees of freedom is 26.217. Significant at one percent level.

[b]Includes graduates for whom data regarding high school course work were not available.

[c]Information not available on 11 graduates.

Table 10. Agricultural classification of occupations by expressed value of vocational agriculture

Value		Agricultural classification: Farmers and farm managers	Farm laborers	Off-farm agricultural	Non-agricultural	Total N	Total %
None(1)	(N)	27	2	64	1322	1415	27.55
	(%)	1.71	1.87	9.14	48.14		
Little (2)	(N)	64	5	85	623	777	15.13
	(%)	4.04	4.67	12.14	22.69		
Some (3)	(N)	427	21	227	608	1283	24.98
	(%)	26.97	19.63	32.43	22.14		
Much (4)	(N)	358	27	143	117	645	12.56
	(%)	22.62	25.23	20.43	4.26		
Very much (5)	(N)	707	52	181	76	1016	19.78
	(%)	44.66	48.60	25.86	2.77		
Total	(N)	1583	107	700	2746	5136[a]	100.00
	(%)	100.00	100.00	100.00	100.00		
Mean value		4.05	4.14	3.42	1.91	2.82	

[a]Total does not include those 971 graduates who did not enroll in vocational agriculture, were unemployed, were students and those for whom information was not available.

Table 11. Migration of graduates by semesters of vocational agriculture[a]

Migration		Semesters of vocational agriculture					
		None[b]	One to four	Five or six	Seven or more	Total N	Total %
Same or continguous county	(N)	373	542	633	1920	3468	56.79
	(%)	46.28	48.61	54.10	63.66		
Same economic area	(N)	44	61	50	119	274	4.49
	(%)	5.46	5.46	4.27	3.95		
Within Iowa	(N)	130	151	156	299	736	12.05
	(%)	16.13	13.54	13.33	9.91		
Contiguous state	(N)	96	125	138	288	647	10.59
	(%)	11.91	11.21	11.80	9.55		
Outside contiguous state	(N)	163	236	193	390	982	16.08
	(%)	20.22	21.17	16.50	12.93		
Total	(N)	806	1115	1170	3016	6107	100.00
	(%)	100.00	100.00	100.00	100.00		

[a]Chi-square = 139.608. Table value at one percent level with 12 degrees of freedom is 26.217. Significant at one percent level

[b]Includes graduates for whom data regarding high school course work were not available.

Table 12. Agricultural classification of occupations by quartile rank in high school graduating class[a]

Quartile rank		Agricultural classification: Farmers and farm managers	Farm laborers	Off-farm agricultural	Non-agricultural	Total N	Total %
Bottom one-fourth	(N)	578	68	229	1063	1938	33.24
	(%)	34.26	62.96	30.25	32.42		
Third one-fourth	(N)	492	20	205	876	1593	27.32
	(%)	29.17	18.52	27.08	26.72		
Second one-fourth	(N)	425	15	161	774	1375	23.58
	(%)	25.19	13.89	21.27	23.60		
Top one-fourth	(N)	192	5	162	566	925	15.86
	(%)	11.38	4.63	21.40	17.26		
Total	(N)	1687	108	757	3279	5831[b]	100.00
	(%)	100.00	100.00	100.00	100.00		

[a]Chi-square value = 93.416. Table value at one percent level with nine degrees of freedom is 21.666. Significant at one percent level.

[b]Information not available on 276 graduates.

and farm managers. Nearly one-half (47.57 percent) of the graduates in the top one-fourth of their classes were engaged in professional and technical occupations, as shown in Table 13.

Data in Table 14 indicated that migration was directly related to quartile rank. Of the graduates who ranked in the bottom one-fourth, 64.56 percent had remained in their home communities and 78.06 percent had remained in Iowa. In contrast, 38.70 percent of the graduates who ranked in the top one-fourth had remained in their home communities and 62.81 percent had remained in Iowa. Graduates who ranked high tended to receive high income.

When classified according to year of graduation, the findings revealed that the older graduates tended to be engaged in farming and farm management more frequently than was expected. Likewise, the older graduates tended to receive higher incomes than the younger graduates. The younger graduates tended to be employed more frequently as farm laborers and in off-farm agricultural occupations.

A lower percentage of the farmers, farm managers, and farm laborers had matriculated in post-high school educational institutions as compared to the other classifications of graduates. Of the total number of graduates, 16.33 percent had attended Iowa State University and 50.09 percent had not matriculated in a post-high school educational institution.

Seventy-four and eighty-eight hundredths percent of the farmers and farm managers had not enrolled in a post-high school educational institution. Of the professional and technical employees, 55.38 percent had received bachelor degrees, whereas 5.32 percent of the farmers and farm managers and 17.63 percent of all graduates had been awarded bachelor degrees.

The annual income received by the graduates tended to be related directly to the highest certificate or degree that they had attained, as shown in Table 15. Thirty percent of the graduates who had not enrolled in a post-high school educational institution were receiving annual incomes of $6001 and over, whereas 70.92 percent of those who had attained at least a masters degree were receiving income of $6001 and over.

Of the graduates who had enrolled in a post-high school educational institution, 10.01 percent of the farmers and farm managers and 26.46 percent of those in off-farm agricultural occupations had pursued an agricultural curriculum. Of the graduates who matriculated in a post-high school educational institution, 19.16 percent had pursued an agricultural curriculum. Thirty-two and fifty-eight hundredths percent of these enrollees became farmers and farm managers, and 32.41 percent were employed in professional and technical occupations at the time of the study. Of the graduates in off-farm agricultural occupations, 25.17 percent studied agricultural curricula and 52.99 percent did not matriculate in a post-high school educational institution.

A correlation matrix of selected variables relating to the occupations of the graduates revealed that 78 of the 120 intercorrelations were significantly different from zero. Quartile rank was positively correlated with semesters of mathematics (.357); occupational prestige scale value (.335); enrollment in a post-high school educational institution (.336); and participation in extra-curricular activities in high school (.261). Semesters of mathematics were positively correlated with enrollment in post-high school educational institution (.245), and occupational prestige scale value (.228), and negatively correlated

Table 13. Census classification of occupation by quartile rank in high school graduating class

Census classification		Quartile rank: Botton one-fourth	Third one-fourth	Second one-fourth	Top one-fourth	Total: N	Total: %
Professional and technical	(N)	125	201	289	428	1043	18.27
	(%)	6.58	12.84	21.53	47.57		
Farmers and farm managers	(N)	578	492	425	192	1687	29.55
	(%)	30.42	31.42	31.64	21.33		
Managers and proprietors	(N)	151	153	137	62	503	8.81
	(%)	7.95	9.77	10.20	6.89		
Clerical	(N)	112	94	94	48	348	6.09
	(%)	5.89	6.00	7.00	5.33		
Sales	(N)	93	112	76	38	319	5.59
	(%)	4.89	7.15	5.66	4.22		
Craftsmen	(N)	343	257	164	79	843	14.77
	(%)	18.05	16.41	12.21	8.78		
Operatives	(N)	280	159	97	31	567	9.93
	(%)	14.74	10.15	7.22	3.44		
Service	(N)	60	16	10	4	90	1.58
	(%)	3.16	1.02	0.74	0.44		
Farm laborers	(N)	68	20	15	5	108	1.89
	(%)	3.58	1.28	1.12	0.56		
Laborers (except farm and mine)	(N)	90	62	36	13	201	3.52
	(%)	4.74	3.96	2.68	1.44		
Total	(N)	1900	1566	1343	900	5709[a]	100.00
	(%)	100.00	100.00	100.00	100.00		

[a]Information not available on 398 graduates.

Table 14. Migration of graduate by quartile rank in high school graduating class

Migration		Quartile rank: Bottom one-fourth	Third one-fourth	Second one-fourth	Top one-fourth	Total N	Total %
Same or contiguous county	(N)	1257	944	763	358	3322	56.90
	(%)	64.56	59.22	55.57	38.70		
Same economic area	(N)	69	63	78	53	263	4.50
	(%)	3.54	3.95	5.68	5.73		
Within Iowa	(N)	194	181	162	170	707	12.11
	(%)	9.96	11.36	11.80	18.38		
Contiguous state	(N)	166	169	151	123	609	10.43
	(%)	8.53	10.60	11.00	13.30		
Outside contiguous state	(N)	261	237	219	221	938	16.06
	(%)	13.41	14.87	15.95	23.89		
Total	(N)	1947	1594	1373	925	5839[a]	100.00
	(%)	100.00	100.00	100.00	100.00		

[a]Information not available on 268 graduates.

Table 15. Primary occupational income by highest certificate or degree attained by graduates

Income		Highest certificate or degree attained					Total	
		Did not attend[a]	License or equivalent or none	Two year certificate or equivalent	Bachelor's degree	Master's degree or higher	N	%
$3000 or less	(N)	469	97	14	64	26	670	12.28
	(%)	16.10	8.32	10.37	6.45	10.36		
$3001 to $6000	(N)	1570	614	60	397	47	2688	49.25
	(%)	53.90	52.65	44.44	39.98	18.72		
$6001 to $9000	(N)	576	362	49	414	106	1507	27.61
	(%)	19.77	31.05	36.30	41.69	42.23		
$9001 and over	(N)	298	93	12	118	72	593	10.86
	(%)	10.23	7.98	8.89	11.88	28.69		
Total	(N)	2913	1166	135	993	251	5458[b]	100.00
	(%)	100.00	100.00	100.00	100.00	100.00		

[a]Includes those enrolled at time of investigation.

[b]Information not available or inappropriate on 649 graduates.

with semesters of vocational agriculture (-.243) and semesters of industrial arts (-.207).

Semesters of science were negatively correlated with semesters of vocational agriculture (-.287) and semesters of industrial arts (-.212). Semesters of vocational agriculture also were negatively correlated with semesters of industrial arts (-.380).

The expressed need for a knowledge of agriculture was negatively correlated with enrollment in post-high school educational institutions (-.247). Occupational prestige scale value was positively correlated with extracurricular activity participation (.216); occupational income (.285); and enrollment in post-high school educational institution (.364). Positive correlations between extracurricular activity participation and enrollment in post-high school educational institutions (.238) and between the education attained by the fathers and mothers of the graduates (.393) were derived.

A correlation matrix of variables relating only to the graduates who had enrolled in vocational agriculture indicated that 71 of the 120 intercorrelations were significantly different from zero. The magnitude of the correlations of comparable variables generally were similar to those reported for the total population.

The value of vocational agriculture to the graduates in their occupations was positively correlated with the semesters of vocational agriculture that they had taken (.252) and to their need for a knowledge of agriculture (.797). Value of vocational agriculture was negatively correlated, however, to enrollment in a post-high school educational institution (-.210).

A total of 74 of the intercorrelations of variables relating to the graduates who had participated in 4-H Club activities were significantly different from zero. The value of the 4-H Club activities as expressed by the graduates was positively correlated with their expressed need for a knowledge of agriculture (.701) and with the number of semesters of vocational agriculture in which they had enrolled (.155). Enrollment in a post-high school educational institution was negatively correlated with the expressed value of 4-H Club activities (-.145).

A separate correlation matrix of variables relating to the graduates who were not self-employed produced 86 intercorrelations that were significantly different from zero. Among this group of graduates, quartile rank was positively correlated with occupational prestige scale value (.433) and occupational income (.257). Likewise, occupational prestige scale value was positively correlated with income (.444) and enrollment in a post-high school educational institution (.500). Post-high school education was positively correlated with occupational income (.246). Job-satisfaction scale values were positively correlated with income (.220); occupational prestige (.215); extracurricular activity participation (.151); need for a knowledge of agriculture (.149); quartile rank (.122); and enrollment in a post-high school educational institution (.115).

A correlation matrix of variables relating to the graduates engaged in farming revealed that nine of the intercorrelations were significant at the one percent level and eight were significantly different from zero at the five percent level. The level of living indices of the graduates' homes at the time of their graduation from high school were positively correlated with the annual occupational incomes of the graduates (.123) and their extracurricular activity participation (.093). Negative correlations were derived between level of living

indices and size of the graduates' high school graduating classes (-.190); size of the home farms of the graduates (-.163); and the number of acres in the farms operated by the graduates (-.122). The number of acres operated by the graduates was positively correlated with the size of their home farms (.440).

The quartile rank of the graduates who were engaged in farming was positively correlated with their expressed need for a knowledge of agriculture (.119); extracurricular activity participation (.227); and the size of their graduating classes (.078). Quartile rank was negatively correlated with income (-.084). Income, however, was positively correlated with the size of the graduates' home farms (.112) and their participation in extracurricular activities (.084). Extracurricular activity participation was negatively correlated with the size of the graduating classes of the graduates (-.141).

Implications

A more definitive classification system is needed to determine and classify those occupations which are off-farm agriculturally related. The classification employed in agricultural education research should be more uniform and less arbitrary to enable more exact comparisons of findings.

Guidance counselors, vocational agriculture instructors, and classroom teachers should be apprised of the factors related to the occupations and the occupational status of their former graduates. This course of action calls for periodic follow-up studies of the graduates from each high school, and curriculum evaluations and revisions where needed.

Resource inputs into agricultural education should be measured in terms of the needs of the community or area of the state. The findings indicated that the occupational distribution of the graduates from the Southern Pasture area differed distinctly from the occupations of the graduates in the other economic areas. Minor differences in the agricultural classification of the occupations also were noted within the other areas.

Pilot programs are needed to develop an educational curriculum which will be more beneficial to graduates engaged in off-farm agricultural occupations.

High school students should be acquainted with the occupational opportunities in farming and in off-farm agricultural industries. The general education requirements, expected income, advancement opportunities and other appropriate information should be made available by vocational agriculture instructors and others acquainted with these areas.